State of New Mexico
ENVIRONMENT DEPARTMENT
DOE OVERSIGHT BUREAU
Post Office Box 1663 MS J993
Los Alamos, New Mexico 87545
Telephone (505) 672-0443 672-0466

BILL RICHARDSON
GOVERNOR

RON CURRY
SECRETARY

DERRITH WATCHMAN MOORE
DEPUTY SECRETARY

TA-50

[50-00601 Surface Water, Ten Site Canyon]

October 14, 2005

Gene Turner, DOE/AIP/POC
Department of Energy
Office of Los Alamos Site Operations
528 35th Street, MS: A316
Los Alamos, NM 87544

SUBJECT: Final Report from NMED on TA-50 Pumphouse Spill of 8/29/2005

Dear Mr. Turner:

Enclosed you will find the final report on the TA-50 Pumphouse spill of 8/29/2005. This report is provided to you from the New Mexico Environment Department, DOE Oversight Bureau. If you have and questions or are of further need of assistance please feel free to call Erik Galloway of the Santa Fe Technical Support staff at (505) 428-2547.

Sincerely,

Stephen Yanicak

Steve Yanicak,
Point of Contact/LANL
NMED, DOE OB

SY:epg

xc: Christopher Vick, NMED/GWQB
Frank Rodarte, NMED/HWB
John Young, NMED/HWB
Bret Lucas, NMED/SWQB
Tim Zimmerly, LANL/(ENV-WQH) MS K497
Steve Rae, LANL/(ENV-WQH) MS K497
File: WR Office

9049

TA-50 PUMPHOUSE STORM WATER RETENTION BASIN DISCHARGE MAP

LEGEND

- FLOW PATH
- PUMPHOUSE CONSTRUCTION SITE
- RETENTION BASIN
- PRS 50-006 (a)

KEYED NOTES

1. THIS MAP INDICATES THE APPROXIMATE LOCATION OF THE BREACH AND DIRECTION OF THE MAJORITY OF THE FLOW INTO TEN SITE CANYON WHICH OCCURRED ON AUGUST 29, 2005.

09-16-2005

Enclosure 1

Notes on TA-50 Pump House spill reported on 8/29/2005. Erik Galloway, Hydrologist, DOE Oversight Bureau. Completed on 10/12/2005.

Overview: Spill was reported on 8/29/2005 to the emergency hotline at Hazardous Waste Bureau. Spill happened at approximately 12:45 pm and was reported within 24 hours as required by 20.6.2 NMAC 20.6.2.1203 Notification of Discharge-Removal. Spill was approximately 18,000 gallons of storm water that was evacuated from "basement area" of pump house construction site at TA-50 into aboveground bermed retention pond. The area received approximately 1.5 inches in one hour on Wednesday 8/24/2005 and additional rainfall during the weekend. Prior to site reconnaissance, I contacted John Young and Frank Rodarte of the Hazardous Waste Bureau, Chris Vick of the Ground Water Quality Bureau and Bret Lucas of the Surface Water Quality Bureau. LANL representatives were Tim Zimmerly, Spills Coordinator, Paula Diepolder, LANL Project Leader, University Of California and Jerry Taffie, Site Construction Manager, Austin Company (Contractor). The construction activities are regulated by one NPDES permit #NMR150000 for all aspects of the Cerro Grande Rehabilitation, Waste Management Mitigation Project.

Reconnaissance: At approximately 1:00 pm on 8/30/2005, I met Tim Zimmerly at TA-59 and followed him to TA-50 were the spill occurred. Weather was clear and approximately 89 degrees. Upon entrance to the site, I signed in and was given safety vest, eye protection and hardhat. I was met by Paula D. and Jerry T. on-site and was given a brief overview of site, construction work and spill. In general, the area was highly impacted from the construction activity and spill. Mud, lose and/or excavated soil, and construction debris were present throughout the site. BMPs in place were two silt fences and some terracing. An excavated hole was also dug on the east side of the holding pond down gradient of the site between the holding pond and Ten-Site Canyon to contain potential runoff. This trench proved to be unsuccessful. The holding pond was approximately 75 to 100 square feet with a 10 foot wall on the south side and 5 foot walls of an all other sides. Soil was used from "basement" excavation site and soil was slightly tamped within the holding pond area. The temporary holding pond and emergency trench showed signs of breech and spill. Holding pond was still saturated and base of south pond slope toward "basement" area showed further signs of saturation. This was brought to attention of Austin employees as a possible area of concern. Evacuation of emergency trench could have been a factor in final retention holding pond failure. Austin staff stated "spill followed four different pathways" 1) Through adjacent parking lot and down northern slope of Ten-Site Canyon; 2) Directly down west-facing slope of Ten-Site Canyon after breaching silt fences; 3) Down culvert to north side of construction area and then into Ten-Site Canyon; and 4) Down slope into "basement area". Austin staff also said that once spill entered Ten-Site Canyon, it continued down approximately ¾ to 1 mile until it infiltrated into soil. Spill site contained two SWMUs, one at "basement" location and one on Ten-Site Canyon slope. BMP implementation was discussed. Austin staff said that, "silt fences were installed on site before construction started" Inadequacy was discussed as well as possible emergency BMPs that could have been used to mitigate spill. (i.e. inflatable or straw berms, emergency pumping, etc.). I was then informed that Austin was bringing in a 10,000 gallon tank to replace temporary

holding pond and that seepage and "basement" dewatering would be directed into tank. LANL and contractor staff identified several SWMUs/PRSs (50-009, 50-006(a), 50-004(c) aka 50-004(a)00, 50-011(a)) as potentially impacted from the spill. An e-mail dated 9/2/2005 from Mike Saladen clarified at PRS/SWMU 50-006(a) was the only SWMU impacted by the spill. Possible impacts to SWMUs were discussed. Two samples were taken in 4 liter plastic cubic containers at temporary holding pond and in "basement". Samples were marked and placed in ice chest with ice to cool to 4 degrees Celsius for transport to refrigeration units at DOE OB for possible further analysis. Photographs and photo documentation were discussed because of security concerns as well as construction permit number, SWMU identification numbers, Storm Water Pollution Prevention Plan SWPPP) availability, and laboratory analysis data from "basement" sample taken after spill event. (Please see attached memo dated 8/31/2005 to Tim Zimmerly) Required 7-day spill notice was received from Tim Zimmerly on September 2, 2005.

Samples: 8/30/2005 TA-50 Pump House spill on 8/29/2005.

1) Upper-holding pond 2:02pm.
2) Lower "basement" 2:10pm.

Samples were not sent to laboratory because a sample was taken during time of construction site flood and sent to laboratory for analysis by LANL staff. Sample showed a slight exceedance for gross alpha. These samples were archived incase further analysis is needed.

Follow-up: Follow-up on site corrective action was done on 9/21/2005 at approximately 2:00 pm. Weather was clear and mild. I met with Tim Zimmerly and Mark Haagenstad of LANL and Gene Turner of DOE. I was informed that the Austin Company was no longer the contractor for the site and that LANL itself had taken over the project. Upon getting to the site I found that the temporary storm water retention pond and the evacuated hole were gone. The temporary 10,00 gallon tank that was brought to the site to contain the "basement" storm water was replaced with three 3,000 gallon tanks. Several directional berms have been located throughout the site to help prevent excessive run-off/run-on of storm water. An additional drainage channel is also being put into place in order to prevent flooding into the construction site. Further BMPs were discussed as well as some proposed site closure measures including terracing of area.

Additional follow-up was done on 10/5/2005 with Tim Zimmerly and TA-50 site manager (After large rainfall event). The construction site looked good after the rainfall event. Site managers need to keep and eye on 24 inch culvert due to holes being present in culvert. Culvert is being replaced with concrete culvert. Site managers need to also keep and eye on southwest side drainage so that the BMPs in place are not overwhelmed and equipment washing water holding area for leakage. Site manager needs to periodically monitor storm drain on southwest side of construction area to make sure flow is maintained. This storm drain allows excess storm water from adjoining areas to be rerouted through drain and so that it does not end-up accumulating on site. Track-on and track-off BMPs need to be managed so that soil is not tracked from site on equipment.

Requested Documentation: Request documentation was received on 10/3/2005. (Please see attached memo dated 8/31/2005 to Tim Zimmerly)

Lessons Learned: NMED

- Prepare ready-to-go spill response kit, which includes sampling containers, safety equipment and documentation.
- If camera is not permitted, walk site with site manager and take pictures in order document site even if they have already done it.
- Put together contact list with names, numbers and e-mails of NMED and responsible party contacts.

Lessons Learned LANL:

- During the interview I was asked several times, "Is this spill reportable and if it is, under what?" I gave Tim Zimmerly a copy of the NMAC regulations and told him it was reportable under NMAC 20.6.2.1203 Notification of Discharge-Removal. I explained that the spill was "reportable" especially one of this magnitude. It appears that education on spill reporting requirements needs to be done with LANL and their "contractors".
- LANL staff need to educate its "contractors" about the SWPPP. The SWPPP should be available "on-site" at all times, either for purposes of an inspection or for a reference. Additionally, the project managers and operators should have reviewed the SWPPP before construction starts and know what to do if a spill happens. Also, all site managers and operators need to have the SWPPP available so that if spill happens, they can quickly identify all potentially affected SWMU's and the remedial actions required.

Conclusion: Construction at site is on-going until fall of 2006. Site BMP implementation will go on until construction activity is completed. Remedial actions from spill to date are adequate. Follow-up site visits will be done as time permits. Storm water accumulation into construction "basement" area is now pumped into 3,000 gallon holding tanks and then used for construction site dust suppression. Site close-out BMPs have been discussed with site stabilization as the main objective. Terracing is recommended for final site remediation. It is a suggestion that at these long-term construction sites, a BMP implementation and maintenance log be kept by the site manager so that the progression of BMP implementation, its effects, and maintenance can be followed.

Los Alamos
NATIONAL LABORATORY
EST. 1943

Environmental Stewardship Division
Water Quality & Hydrology Group (ENV-WQH)
P.O. Box 1663, Mail Stop K497
Los Alamos, New Mexico 87545
(505) 667-7969/FAX: (505) 665-9344

Refer To: ENV-WQH: 05-

DATE: 9/2/2005 LOG NO: WQH-FAX-05-
FROM: Tim Zimmerly Phone#: 505-664-0105

TO:	Everett Spencer	ORG:	EPA
FAX#:	214-665-2168	PHONE#:	214-665-6475
TO:	Bret Lucas	ORG:	NMED-SWQB
FAX#:	505-827-0160	PHONE#:	505-827-2933
TO:	Curt Frischkorn	ORG:	NMED-GWQB
FAX#:	505-827-2965	PHONE#:	505-827-2198
TO:	John Young	ORG:	NMED-HWB
FAX#:	505-428-2567	PHONE#:	505-428-2538
TO:	Ralph Ford-Schmid	ORG:	NMED/DOE-OB
FAX#:	505-827-1544	PHONE#:	505-428-2500
TO:	Gene Turner	ORG:	DOE
FAX#:	505-665-4872	PHONE#:	505-667-5794
TO:	Alice Barr	ORG:	ENV-SWRC
FAX#:	505-667-5224	PHONE#:	505-667-0820
TO:	Mike Strevell	ORG:	PM-DO
FAX#:	505-667-1196	PHONE#:	505-665-5058
TO:	Rick Alexander	ORG:	NWIS-RLW
FAX#:	505-665-6320	PHONE#:	505-665-7020
TO:	James R. Jones	ORG:	PM-IP
FAX#:	505-667-3989	PHONE#:	505-665-0144

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Refer To: ENV-WQH: 05-

DATE: 9/2/2005 LOG NO: WQH-FAX-05-
FROM: Tim Zimmerly Phone#: 505-664-0105

TO:	Paula Diepolder	ORG:	PM-DS
FAX#:	505-667-9116	PHONE#:	505-667-3549
TO:	Barbara Stine	ORG:	ADTS
FAX#:	505-665-1812	PHONE#:	505-667-0079
TO:	Tori George	ORG:	ENV DIVISION
FAX#:	505-665-8190	PHONE#:	505-667-7883
TO:	Dave Szucs	ORG:	AUSTIN COMPANY
FAX#:	949-451-9011	PHONE#:	949-451-9032

MESSAGE: Attached you will find the 7-Day Release/Discharge Notification for a storm water discharge at the TA-50 Pumphouse Construction Site at Los Alamos National Laboratory. Please contact Tim Zimmerly (505-664-0105 or 505-699-7621) if you have any questions on this matter. Thank you.

NUMBER OF PAGES TO FOLLOW: 2

RELEASE / DISCHARGE NOTIFICATION

LOS ALAMOS NATIONAL LABORATORY

Permit Number: NM0028355

Calendar Year **2005**

NPDES or Operational Spill/Release ☑
ER Spill/Release ☐
Other Spill/Release ☐
Indicate with "X" in appropriate box.

Release ID Number: 153

Responsible Facility/User Group: PM-IP

Contact Person: James Jones **Pager #:** 996-1263

Phone #: 665-0144 **Cell Phone #:** 699-0632

Release/Discharge Location:

TA: 50

Building: 215

The east facing berm of a retention basin failed at the TA-50 Pumphouse construction site on 8/25/05. Approximately18,000 gallons of storm water was discharged into Tensite Canyon.

If the release/discharge is associated with a NPDES Outfall, Potential Release Site (PRS) or Solid Waste Management Unit (SWMU), indicate the site/unit number and its relationship to the release/discharge:

NPDES Outfall: ☐ **PRS:** ☑ **SWMU:** ☐ **PRS/SWMU Number:** 50-006(a)

Indicate with "X" in appropriate box(es).

Relationship of the Discharge to a SWMU or PRS:

Discharge Occurred: 8/29/2005 12:45 (Date & Time)

Discharge Discovered: 8/29/2005 12:45 (Date & Time)

Discharge Stopped: 8/29/2005 12:50 (Date & Time)

Cleanup Started: 8/29/2005 1:00 (Date & Time)

Cleanup Completed: 9/7/2005 ongoing (Date & Time)

Material(s) Released / Discharged:

A retention basin was constructed on 8/25/05 to retain storm water pumped from the basement of the construction site. The storm water was being rertained on site and allowed to dissipate by percolation and evaporation. The basin was initially filled on 8/25/05 and the failure occurred on 8/29/05 at 12:45 pm. Storm water with sediment was released toTensite Canyon.

Release/Discharge Mitigation Method:

The front end loader that was on site immediately moved to the location of the breach and placed soil in the area of the berm to stop any additional discharge. The retention basin will not be used any longer and future storm water will be pumped into an aboveground storage tank and will be used on the site for dust suppression.

Weather Conditions:

Sunny and warm

Duration of Release/ Discharge, in HOURS: <5 min

Est. Volume Released/ Discharged, in GAL. 18,000

Est. Volume Recovered, in GAL. 1,800

Corrective Actions Taken (ie, type of BMPs, etc):

At the time of the discharge, an additonal earthen berm was in place to the east downhill slope of the site. Two rows of silt fences were also in place at the toe of the slope. Visible sediment and rocks were recovered where practicable on the gunite slope leading to Tensite Canyon. An above ground tank will be used to retain storm water in the future.

Nearest Watercourse (Canyon Name) Ten Site Canyon

If the release/discharge reached a watercourse, describe the estimated surface area affected, presence of release/discharge now in the watercourse, and the media the release/discharge was detected in:

The width of the bottom of Tensite Canyon is approximately 4 feet and the extent of the discharge flowed approximately 0.75 miles to the east in Tensite Canyon. The bottom of the canyon consists of weathered volcanic tuff.

Depth to Groundwater, in FT, if known: ~1000

Distance to Nearest Drinking Water Well, in FT, if known: ~5750 **Well ID#** PM-5

24-HOUR RELEASE/DISCHARGE NOTIFICATIONS

	Contact Person	Phone	Fax	Date & Time (or Comment)	
EPA:	E. Spencer	214-665-6475	214-665-2168	9/2/2005	FAX
NMED/SWQB:	Bret Lucas	827-2933	827-0160	8/30/2005	9:00 am
NMED/GWQB:	Curt Frischkorn	827-2918	827-2965	9/2/2005	FAX
NMED/HRMB:	John Young	428-2538	428-2567	9/2/2005	FAX
NMED/DOE-OB:	Ralph Fordschmid	428-2500	827-1544	8/30/2005	& 9/2/05 FAX
ENV-WQH:	Tim Zimmerly	664-0105	665-9344	9/2/2005	FAX
DOE:	Gene Turner	667-5794	505-665-4872	9/1/2005	3:00 pm
OTHER:	NMED Spill Phone Line	505-428-2500	505-428-2567	8/29/2005	5:45 pm
OTHER:	Alice Barr	667-0820	667-5224	9/2/2005	FAX

Comments: Tim Zimmerly (ENV-WQH) provided a verbal 24-hour release notification via phone message at 5:45pm on 8/29/05. Sand bags placed at site permiter to prevent storm water run-on into the TA50 construction site.

Form Completed By: Tim Zimmerly

7 DAY RELEASE/DISCHARGE ACTIONS

7 Day Notice ☑ **7 Day Notice Date:** 9/2/2005 **7 Day Notice By:** Tim Zimmerly

Mark "X" when done.

Comments: Site berms and slopes redressed and silt fences restored. Sediment retrieved where practical. An above ground storage tank brought on site to retain storm water on site

15 DAY RELEASE/DISCHARGE ACTIONS

15 day Follow-up Due: 9/12/2005 **15-day Follow-Up By:** Tim Zimmerly

Comments:

NMED 30 DAY APPROVAL/DISAPPROVAL

NMED 30 Day Response Date: 9/28/2005

Comments:

Edwin Wilmot, Director
Office of Los Alamos Site Operations
Department of Energy
Los Alamos, New Mexico 87544
(505) 667-5105

Kenneth Hargis, Acting ENV Division Director
University of California
Los Alamos National Laboratory
P.O. Box 1663, MS K491
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BILL RICHARDSON
GOVERNOR

RON CURRY
SECRETARY

DERRITH WATCHMAN MOORE
DEPUTY SECRETARY

M E M O R A N D U M

TO: Tim Zimmerly, Spills Coordinator, Los Alamos National Laboratory

FROM: Erik Galloway, Hydrologist, NMED, DOE Oversight Bureau

SUBJECT: Information request for TA-50 Pumphouse spill on 8/29/2005

DATE: August 31, 2005

The following is request for follow-up information pertaining to the spill investigation reported to the New Mexico Environment Department on August 29, 2005 at the Pumphouse located at TA-50.

Please provide the following information:

1. The NPDES construction general permit number that the activities were conducted under;
2. A site specific map detailing the location of the spill and the effected SWMU site numbers and locations;
3. A copy of the Storm Water Pollution Prevention Plan that the activities were conducted under;
4. Copies of the photo documentation of the site taken by LANL staff;
5. A copy of the water quality sample laboratory analysis data of the "Basement" water that was conducted at the site after the release.

Please provide this information as soon as possible so that I can complete my report on this matter.

Thank you for spending the time with me at the site and I am looking forward to working with you in the future.

If you have any questions please feel free to call me at (505) 428-2547.

cc. John Young, Environmental Sci. & Spec., HWB
Christopher Vick, Hydrogeologist, GWQB
Frank Rodarte, Environmental Sci.& Spec., HWB
Bret Lucas, Environmental Sci.& Spec., HWB
File

Galloway, Erik, NMENV

From: Ford-Schmid, Ralph, NMENV **Sent:** Tue 9/6/2005 8:33 AM
To: Galloway, Erik, NMENV; Young, John, NMENV
Cc:
Subject: FW: SWMU/PRS Id's
Attachments:

FYI

From: Michael Saladen [mailto:saladen@lanl.gov]
Sent: Fri 9/2/2005 3:39 PM
To: Ford-Schmid, Ralph, NMENV
Cc: zimmerly@lanl.gov; mph@lanl.gov
Subject: Fwd: SWMU/PRS Id's

Ralph,

I am following up for Tim Zimmerly because he is trying to get the 7-day report out before the holiday weekend. ER has reviewed the release from the TA-50 Pumphouse construction site. Based on ER's review, Tim's previous email regarding potential SWMU impacts needs to be clarified. The only TA-50 PRS potentially impacted by the release is SWMU 50-006(a), which is located at the head of Ten Site Canyon. SWMU 50-009 is MDA C, which is located adjacent to, but upstream from SWMU 50-006(a) and did not receive runoff from the release. Portions of SWMUs 50-004(c) and 50-011 (a) are at the location of the tank pit where the storm water originated, under several feet of concrete, and not available for contact with runoff. These sites were remediated prior to construction of the tank pit, however, and confirmatory samples were collected to verify cleanup. Results of this sampling were previously submitted by ER to NMED-HWB.

The TA-35 PRSs are all located on Ten Site Mesa and extend down the canyon slope. Based on existing data, we do not believe the PRS boundaries extend to the bottom of the canyon where the runoff flow occurred and, therefore, these sites should not have been impacted.

Please call if you have questions. Thanks!!!

Mike

X-Sieve: CMU Sieve 2.2
X-Mailer: QUALCOMM Windows Eudora Version 6.2.1.2
Date: Thu, 01 Sep 2005 13:48:15 -0600
To: ralph.ford-schmid@state.nm.us
From: Timothy Zimmerly <tzimmer@lanl.gov>
Subject: SWMU/PRS Id's
Cc: erik.galloway@state.nm.us, saladen@lanl.gov
X-PMX-Version: 4.7.1.128075

Ralph,
These are the SWMU/PRS Id's that may have been potentially impacted by the release of storm water from the TA50 Pumphouse construction site. The extent of the flow was approximately 0.75 mile.
As I discussed with Erik, I will need to send all maps, photos and documents that you requested thru an ADC and S-7 for their approval before sending them to

Enclosure 4

Received 9/1/05

Certificate of Analysis

Contact: Darren Meadows
Analyst: Matthew Filer, Wendy Staples

Sample ID: TA50 Pump House Storm Water
Collect Date: 8/24/2005
Log number: 05.76069

Parameter	Result	Uncertainty	MDL	Units	Analysis Date	Method
Gross Alpha	73	26	26	pCi/L	8/30/2005	1
COD	26	8	8	mg/L	8/25/2005	2
Ag	0	0.01	0.01	mg/L	8/31/2005	3
As	0	0.05	0.05	mg/L	8/31/2005	3
Ba	0.35	0.4	0.01	mg/L	8/31/2005	3
Cd	0	0.01	0.01	mg/L	8/31/2005	3
Cr	0	0.05	0.05	mg/L	8/31/2005	3
Pb	0.044	0.01	0.01	mg/L	8/31/2005	3
Se	0	0.025	0.025	mg/L	8/31/2005	3
Hg	0	0.5	0.5	ug/L	8/31/2005	3
Mg	15	10	10	mg/L	8/31/2005	3
Ra-226	0	1.0	1.0	pCi/L	8/25/2005	4
Ra-228	0	4.0	4.0	pCi/L	8/25/2005	4

The following methods were performed:

Number	Method	Description	Standard Methods Reference	Analyst
1	ACP-RLW-005	Gross Alpha, Beta, and Tritium Analyses by LSC	7030 B.3 and 7500-3H B	MCF
2	ACP-RLW-013	Chemical Oxygen Demand in Water and Wastewater	5220 D	WAS
3	ACP-RLW-022	Determination of Trace Elements Using ICPMS	3125 B	MCF
4	ACP-RLW-008	Radionuclide Analysis by HPGe	7030 B.5	MCF

QC Summary

QC Type/ID	True Value	QC	Units	RPD%	REC%	Range	Comment
Alpha blank	9.0	2.0	pCi/L	-	-	< 9.0	
Alpha CV	596	643	nCi/L	-	108%	507-685	
Alpha LCS	46.4	39.7	nCi/L	-	86%	35-58	
COD LCS	30	25	mg/L	-	83%	22-38	
COD LCS	112	101	mg/L	-	90%	95-129	
COD Duplicate	-	20	mg/L	26%	-	18-34	
Ag Blank	-	0.20	ug/L	-	-	-1.0-1.0	
Ag CV	10	9.8	ug/L	-	98%	85-115%	
Ag Dup	-	0.058	ug/L	*	-	<20%	Sample<MDL
Ag Matrix spike	10	9.3	ug/L	-	93%	75-125%	
As Blank	-	0.11	ug/L	-	-	-1.0-1.0	
As CV	10	9.5	ug/L	-	95%	85-115%	
As Dup	-	0.69	ug/L	2.4%	-	<20%	
As Matrix spike	10	13.6	ug/L	-	129%*	75-125%	See below
Ba Blank	-	0.057	ug/L	-	-	-1.0-1.0	

Gross Alpha, Gross Beta, and Tritium Results Report

Quench indicator SQP(E)
PSA: 115

Regions	LL	UL	Count limit
α CPM1	400	720	10000
α CPM2	530	685	10000
β CPM3	300	930	10000
LUM CPM4	1	300	10000
β CPM5	1	300	10000

Coincidence bias: low
Chemiluminescence: Subtracted

Date: 8/26/2005

	High stds (%)	Low stds (pCi/L)	In? High	In? Low	Standard	Calibration
Alpha calibration verification	108%		yes		Pu242.01	NBMCF0018,148
Beta calibration verification	95%		yes		Sr90.01	NBMCF0018,148
^{3}H calibration verification	97%		yes		H3.01	NBMCF0018,148
Alpha labaratory control standard	86%	46.917	yes	yes	Pu242.01	NBMCF0018,148
Beta labaratory control standard	102%	211.43	yes	yes	Sr90.01	NBMCF0018,148
^{3}H labaratory control standard	87%	3956.9	yes	yes	H3.02	NBMCF0018,148
Alpha blank check	<2%s		yes		10:12 H_2O:LLT	5/12/2004
Beta blank check	>2%s		no		10:12 H_2O:LLT	5/12/2004
^{3}H blank check	<2%s		yes		10:12 H_2O:LLT	5/12/2004

Date	Vol (mL)	Time (min)	Sample Identification	Gross alpha			Gross beta			^{3}H			SQP(E)	LUM	Sample Comments
8/26/2005	5.00	15	TUR 8.24 COL	36	+/- 3.6	nCi/L	< 232		pCi/L	19.1	+/- 1.91	nCi/L	731.32	0%	
8/29/2005	5.00	15	RDI 8.25 74650	27.9	+/- 2.79	nCi/L	< 226		pCi/L	9.29	+/- 0.93	nCi/L	763.68	0%	
8/29/2005	5.00	15	RDI 8.25 COL	13.6	+/- 1.36	nCi/L	< 228		pCi/L	8.69	+/- 0.87	nCi/L	755.33	0%	
8/29/2005	5.00	15	RDF 8.25 74651	31.3	+/- 3.13	nCi/L	< 227		pCi/L	15.3	+/- 1.53	nCi/L	757.93	0%	
8/29/2005	5.00	15	RDF 8.25 COL	17.9	+/- 1.79	nCi/L	< 229		pCi/L	17.4	+/- 1.74	nCi/L	746.15	8%	
8/29/2005	5.00	15	RDI 8.27 74652	33.1	+/- 3.31	nCi/L	< 228		pCi/L	11.3	+/- 1.13	nCi/L	753.89	0%	
8/29/2005	5.00	15	RDI 8.27 COL	15.5	+/- 1.55	nCi/L	< 228		pCi/L	6.61	+/- 0.66	nCi/L	756.14	0%	
8/29/2005	5.00	15	RDI 8.27 74653	18.4	+/- 1.84	nCi/L	< 226		pCi/L	6.91	+/- 0.69	nCi/L	765.04	0%	
8/29/2005	5.00	15	RDI 8.27 COL	9.73	+/- 0.97	nCi/L	< 227		pCi/L	4.77	+/- 0.56	nCi/L	762.39	0%	
8/29/2005	5.00	15	GFE 8.25 76078	2.27	+/- 0.23	nCi/L	262.9	+/- 227	pCi/L	5.38	+/- 0.58	nCi/L	758.26	0%	
8/29/2005	10.00	15	TNKR 8.26 76079	47.4	+/- 18	pCi/L	344.9	+/- 151	pCi/L	2.72	+/- 0.34	nCi/L	750.28	1%	
8/29/2005	5.00	15	RWC 8.28 71235	59.2	+/- 5.92	nCi/L	< 229		pCi/L	20.7	+/- 2.07	nCi/L	749.35	0%	
8/29/2005	10.00	15	FWC 8.28 71335		< 18	pCi/L	< 151		pCi/L	3.04	+/- 0.34	nCi/L	751.75	0%	
8/29/2005	5.00	18.3	RMC AUG 72208	56.3	+/- 5.63	nCi/L	< 207		pCi/L	16.3	+/- 1.63	nCi/L	749.68	0%	
8/29/2005	10.00	480	FMC AUG 72308	7.41	+/- 3.18	pCi/L	99.35	+/- 26.8	pCi/L	4	+/- 0.4	nCi/L	752.03	0%	
8/30/2005	10.00	15	WM5 H20 76080		< 18	pCi/L	< 162		pCi/L		< 442	pCi/L	763	0%	
8/30/2005	5.00	60	STORM H20 7606	72.6	+/- 26	pCi/L	< 158		pCi/L	553	+/- 522	pCi/L	704.29	16%	
8/30/2005	5.00	15	RDI 8.29 74454	41.9	+/- 4.19	nCi/L	< 226		pCi/L	13.8	+/- 1.38	nCi/L	769.02	0%	
8/30/2005	5.00	15	RDI 8.29 COL	28.5	+/- 2.85	nCi/L	< 228		pCi/L	9.02	+/- 0.9	nCi/L	753.44	0%	

Quantitative Analysis - Summary Report

Sample ID: Blank
Sample Date/Time: Wednesday, August 31, 2005 14:19:50
Sample Description:
Solution Type: Blank
Blank File: d:\elandata\Dataset\200508\Blank.205
Number of Replicates: 3
Peak Processing Mode: Average
Signal Profile Processing Mode: Average
Dual Detector Mode: Dual
Dead Time (ns): 57

Sample File: D:\elandata\Sample\050831 metals2.sam
Method File: d:\elandata\Method\rlw metal screen.mth
Dataset File: d:\elandata\Dataset\200508\Blank.205
Tuning File: d:\elandata\Tuning\RLW.tun
Optimization File: d:\elandata\Optimize\RLW.dac
Calibration File:
Calibration Type: External Calibration

Summary

QC Calculated Values

Analyte	Mass	Int Std % Recovery	QC Std % Recovery	Duplicate Rel. % Difference	Spike % Recovery
Li	6				
Be	9				
B	11				
Sc	45				
Al	27				
Si	28				
V	51				
Cr	52				
Fe	54				
Co	59				
Ni	60				
Cu	63				
Y	89				
Zn	66				
Zn	68				
As	75				
Se	82				
In	115				
Ag	107				
Cd	114				
Ba	138				
Ho	165				
Hg	201				
Pb	208				
Th	232				
U	238				
U	235				
U	234				
Sc-1	45				
Na	23				
Mg	24				
K	39				
Ca	44				

Concentration Results

	Analyte	Mass	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Sample Unit
>	Li	6					ug/L
	Be	9					ug/L
	B	11					ug/L
>	Sc	45					ug/L
	Al	27					ug/L
	Si	28					ug/L
	V	51					ug/L
	Cr	52					ug/L
	Fe	54					ug/L
	Co	59					ug/L
	Ni	60					ug/L
	Cu	63					ug/L
>	Y	89					ug/L
	Zn	66					ug/L
	Zn	68					ug/L
	As	75					ug/L
	Se	82					ug/L
>	In	115					ug/L
	Ag	107					ug/L
	Cd	114					ug/L
	Ba	138					ug/L
>	Ho	165					ug/L
	Hg	201					ug/L
	Pb	208					ug/L
	Th	232					ug/L
	U	238					ug/L
	U	235					ug/L
	U	234					ug/L
>	Sc-1	45					ug/L
	Na	23					ug/L
	Mg	24					ug/L
	K	39					ug/L
	Ca	44					ug/L

QC Out Of Limits

Analyte	Mass	Out of Limits Message

MDLs and Unit conversions

Be, B, V, Cr, Co, Ni, Cu, As, Ag, Cd, Pb MDL: 1 ug/L
Al MDL: 10 ug/L
Zn 68 MDL: 2 ug/L
Si, Na, Mg MDL: 100 ug/L; Fe MDL: 300 ug/L; K MDL: 200 ug/L; Ca MDL: 1000 ug/L
Se MDL 0.5 ug/L; Hg MDL: 0.05 ug/L
Th 232 MDL: 0.5 ug/L (0.055 pCi/L), Conversion 0.110 pCi/ug
U 238 MDL: 0.5 ug/L (0.17 pCi/L), Conversion 0.336 pCi/ug
U 235 MDL: 0.005 ug/L (0.011 pCi/L), Conversion 2.16 pCi/ug
U 234 MDL: 0.0005 ug/L (3.1 pCi/L), Conversion 6220 pCi/ug

Quantitative Analysis - Summary Report

Sample ID: QC Std 1

Sample Date/Time: Wednesday, August 31, 2005 14:30:17
Sample Description:
Solution Type: QC Std
Blank File: d:\elandata\Dataset\200508\Blank.205
Number of Replicates: 3
Peak Processing Mode: Average
Signal Profile Processing Mode: Average
Dual Detector Mode: Dual
Dead Time (ns): 57

Sample File: D:\elandata\Sample\050831 metals2.sam
Method File: d:\elandata\Method\rlw metal screen.mth
Dataset File: d:\elandata\Dataset\200508\QC Std 1.207
Tuning File: d:\elandata\Tuning\RLW.tun
Optimization File: d:\elandata\Optimize\RLW.dac
Calibration File:
Calibration Type: External Calibration

Summary

QC Calculated Values

Analyte	Mass	Int Std % Recovery	QC Std % Recovery	Duplicate Rel. % Difference	Spike % Recovery
Li	6	100.516			
Be	9				
B	11				
Sc	45	101.539			
Al	27				
Si	28				
V	51				
Cr	52				
Fe	54				
Co	59				
Ni	60				
Cu	63				
Y	89	101.200			
Zn	66				
Zn	68				
As	75				
Se	82				
In	115	101.866			
Ag	107				
Cd	114				
Ba	138				
Ho	165	100.141			
Hg	201				
Pb	208				
Th	232				
U	238				
U	235				
U	234				
Sc-1	45	101.539			
Na	23				
Mg	24				
K	39				
Ca	44				

Concentration Results

	Analyte	Mass	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Sample Unit
⌈>	Li	6	7214.632				ug/L
|	Be	9	0.002	**0.048768**	0.04	85.8	ug/L
⌊	B	11	0.005	**0.112145**	0.05	43.9	ug/L
⌈>	Sc	45	154211.181				ug/L
|	Al	27	-0.002	**-0.103881**	0.29	281.6	ug/L
|	Si	28	-0.263	**-17.220690**	47.96	278.5	ug/L
|	V	51	-0.002	**-0.035802**	0.07	203.1	ug/L
|	Cr	52	0.004	**0.089675**	0.03	34.5	ug/L
|	Fe	54	0.014	**3.616226**	5.11	141.2	ug/L
|	Co	59	0.004	**0.082813**	0.03	49.3	ug/L
|	Ni	60	0.000	**0.004419**	0.08	1864.3	ug/L
⌊	Cu	63	0.002	**0.065884**	0.03	42.1	ug/L
⌈>	Y	89	282636.782				ug/L
|	Zn	66	0.001	**0.213044**	0.04	19.8	ug/L
|	Zn	68	-0.001	**-0.176040**	0.24	134.6	ug/L
|	As	75	0.001	**0.111820**	0.07	60.5	ug/L
⌊	Se	82	0.000	**0.000988**	0.06	6000.9	ug/L
⌈>	In	115	318961.278				ug/L
|	Ag	107	0.006	**0.200139**	0.05	23.1	ug/L
|	Cd	114	0.001	**0.060975**	0.03	53.3	ug/L
⌊	Ba	138	0.006	**0.057508**	0.04	61.5	ug/L
⌈>	Ho	165	492389.423				ug/L
|	Hg	201	0.000	**0.018313**	0.01	33.2	ug/L
|	Pb	208	0.005	**0.062080**	0.04	65.6	ug/L
|	Th	232	0.006	**0.066142**	0.04	60.9	ug/L
|	U	238	0.005	**0.056134**	0.04	62.5	ug/L
|	U	235	0.000	**0.000379**	0.00	82.4	ug/L
⌊	U	234	0.000	**0.000054**	0.00	21.9	ug/L
⌈>	Sc-1	45	154211.181				ug/L
|	Na	23	0.128	**4.833763**	3.37	69.8	ug/L
|	Mg	24	0.100	**5.454201**	3.28	60.1	ug/L
|	K	39	0.032	**0.675857**	6.07	898.6	ug/L
⌊	Ca	44	0.008	**5.837962**	12.62	216.2	ug/L

QC Out Of Limits

Analyte	Mass	Out of Limits Message

MDLs and Unit conversions

Be, B, V, Cr, Co, Ni, Cu, As, Ag, Cd, Pb MDL: 1 ug/L
Al MDL: 10 ug/L
Zn 68 MDL: 2 ug/L
Si, Na, Mg MDL: 100 ug/L; Fe MDL: 300 ug/L; K MDL: 200 ug/L; Ca MDL: 1000 ug/L
Se MDL 0.5 ug/L; Hg MDL: 0.05 ug/L
Th 232 MDL: 0.5 ug/L (0.055 pCi/L), Conversion 0.110 pCi/ug
U 238 MDL: 0.5 ug/L (0.17 pCi/L), Conversion 0.336 pCi/ug
U 235 MDL: 0.005 ug/L (0.011 pCi/L), Conversion 2.16 pCi/ug
U 234 MDL: 0.0005 ug/L (3.1 pCi/L), Conversion 6220 pCi/ug

Quantitative Analysis - Summary Report

Sample ID: QC Std 3
Sample Date/Time: Wednesday, August 31, 2005 14:40:01
Sample Description:
Solution Type: QC Std
Blank File: d:\elandata\Dataset\200508\Blank.205
Number of Replicates: 3
Peak Processing Mode: Average
Signal Profile Processing Mode: Average
Dual Detector Mode: Dual
Dead Time (ns): 57

Sample File: D:\elandata\Sample\050831 metals2.sam
Method File: d:\elandata\Method\rlw metal screen.mth
Dataset File: d:\elandata\Dataset\200508\QC Std 3.209
Tuning File: d:\elandata\Tuning\RLW.tun
Optimization File: d:\elandata\Optimize\RLW.dac
Calibration File:
Calibration Type: External Calibration

Summary

QC Calculated Values

Analyte	Mass	Int Std % Recovery	QC Std % Recovery	Duplicate Rel. % Difference	Spike % Recovery
Li	6	97.169			
Be	9		94.510		
B	11				
Sc	45	101.285			
Al	27		-79.727		
Si	28				
V	51		102.436		
Cr	52		108.870		
Fe	54				
Co	59		104.927		
Ni	60		104.933		
Cu	63		107.007		
Y	89	100.162			
Zn	66		36.604		
Zn	68		28.873		
As	75		102.681		
Se	82		100.359		
In	115	99.598			
Ag	107		98.896		
Cd	114		100.402		
Ba	138		96.996		
Ho	165	99.744			
Hg	201		91.834		
Pb	208		98.056		
Th	232				
U	238				
U	235				
U	234				
Sc-1	45	101.295			
Na	23				
Mg	24				
K	39				
Ca	44				

Concentration Results

	Analyte	Mass	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Sample Unit
>	Li	6	6974.438				ug/L
	Be	9	0.077	**1.890207**	0.06	3.1	ug/L
	B	11	0.003	**0.058200**	0.02	35.0	ug/L
>	Sc	45	153840.655				ug/L
	Al	27	-0.036	**-1.594535**	0.27	16.7	ug/L
	Si	28	-0.363	**-23.725674**	165.10	695.9	ug/L
	V	51	0.114	**2.048717**	0.11	5.6	ug/L
	Cr	52	0.107	**2.177400**	0.04	1.9	ug/L
	Fe	54	0.831	**220.125506**	6.70	3.0	ug/L
	Co	59	0.129	**2.098533**	0.05	2.3	ug/L
	Ni	60	0.027	**2.098651**	0.08	3.8	ug/L
	Cu	63	0.060	**2.140146**	0.00	0.2	ug/L
>	Y	89	279739.432				ug/L
	Zn	66	0.004	**0.732088**	0.30	40.3	ug/L
	Zn	68	0.002	**0.577465**	0.26	45.7	ug/L
	As	75	0.015	**2.053617**	0.07	3.2	ug/L
	Se	82	0.002	**2.007182**	0.14	7.1	ug/L
>	In	115	311860.369				ug/L
	Ag	107	0.061	**1.977912**	0.15	7.7	ug/L
	Cd	114	0.041	**2.008044**	0.01	0.4	ug/L
	Ba	138	0.200	**1.939913**	0.03	1.6	ug/L
>	Ho	165	490417.040				ug/L
	Hg	201	0.001	**0.183669**	0.00	1.5	ug/L
	Pb	208	0.170	**1.961113**	0.01	0.4	ug/L
	Th	232	0.161	**1.808615**	0.11	5.9	ug/L
	U	238	0.169	**1.836691**	0.00	0.2	ug/L
	U	235	0.001	**0.013769**	0.00	1.4	ug/L
	U	234	0.000	**0.000182**	0.00	14.8	ug/L
>	Sc-1	45	153840.655				ug/L
	Na	23	5.303	**199.766149**	1.87	0.9	ug/L
	Mg	24	3.678	**200.185986**	2.50	1.2	ug/L
	K	39	10.925	**231.537712**	5.54	2.4	ug/L
	Ca	44	0.349	**244.245143**	4.61	1.9	ug/L

QC Out Of Limits

Analyte	Mass	Out of Limits Message

MDLs and Unit conversions

Be, B, V, Cr, Co, Ni, Cu, As, Ag, Cd, Pb MDL: 1 ug/L
Al MDL: 10 ug/L
Zn 68 MDL: 2 ug/L
Si, Na, Mg MDL: 100 ug/L; Fe MDL: 300 ug/L; K MDL: 200 ug/L; Ca MDL: 1000 ug/L
Se MDL 0.5 ug/L; Hg MDL: 0.05 ug/L
Th 232 MDL: 0.5 ug/L (0.055 pCi/L), Conversion 0.110 pCi/ug
U 238 MDL: 0.5 ug/L (0.17 pCi/L), Conversion 0.336 pCi/ug
U 235 MDL: 0.005 ug/L (0.011 pCi/L), Conversion 2.16 pCi/ug
U 234 MDL: 0.0005 ug/L (3.1 pCi/L), Conversion 6220 pCi/ug

Quantitative Analysis - Summary Report

Sample ID: 50EFF
Sample Date/Time: Wednesday, August 31, 2005 14:49:13
Sample Description: SF 8/31 Dup
Solution Type: Sample
Blank File: d:\elandata\Dataset\200508\Blank.205
Number of Replicates: 3
Peak Processing Mode: Average
Signal Profile Processing Mode: Average
Dual Detector Mode: Dual
Dead Time (ns): 57

Sample File: D:\elandata\Sample\050831 metals2.sam
Method File: d:\elandata\Method\rlw metal screen.mth
Dataset File: d:\elandata\Dataset\200508\50EFF.211
Tuning File: d:\elandata\Tuning\RLW.tun
Optimization File: d:\elandata\Optimize\RLW.dac
Calibration File:
Calibration Type: External Calibration

Summary

QC Calculated Values

Analyte	Mass	Int Std % Recovery	QC Std % Recovery	Duplicate Rel. % Difference	Spike % Recovery
Li	6	111.225			
Be	9			86.748	
B	11			0.384	
Sc	45	112.101			
Al	27			1.860	
Si	28			10.461	
V	51			18.581	
Cr	52			0.010	
Fe	54			1.936	
Co	59			2.171	
Ni	60			2.375	
Cu	63			2.100	
Y	89	99.298			
Zn	66			1.241	
Zn	68			0.782	
As	75			2.375	
Se	82			0.887	
In	115	98.574			
Ag	107			29.311	
Cd	114			4.407	
Ba	138			1.491	
Ho	165	95.924			
Hg	201			53.781	
Pb	208			10.272	
Th	232			72.370	
U	238			32.961	
U	235			84.155	
U	234			18.510	
Sc-1	45	112.101			
Na	23			6.238	
Mg	24			3.025	
K	39			5.511	
Ca	44			0.164	

Concentration Results

	Analyte	Mass	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Sample Unit
>	Li	6	7983.302				ug/L
	Be	9	0.000	**0.011398**	0.00	25.7	ug/L
	B	11	2.898	**61.010372**	2.41	4.0	ug/L
>	Sc	45	170251.959				ug/L
	Al	27	1.587	**69.364873**	1.91	2.8	ug/L
	Si	28	47.489	**3104.959241**	152.93	4.9	ug/L
	V	51	-0.044	**-0.796723**	0.43	53.7	ug/L
	Cr	52	8.093	**164.665808**	2.51	1.5	ug/L
	Fe	54	0.269	**71.201831**	1.63	2.3	ug/L
	Co	59	0.096	**1.560471**	0.02	1.2	ug/L
	Ni	60	0.294	**23.183669**	0.35	1.5	ug/L
	Cu	63	0.565	**20.058142**	0.62	3.1	ug/L
>	Y	89	277326.675				ug/L
	Zn	66	5.906	**1205.408768**	0.71	0.1	ug/L
	Zn	68	4.203	**1186.886035**	8.70	0.7	ug/L
	As	75	0.005	**0.694753**	0.01	1.7	ug/L
	Se	82	0.001	**1.923177**	0.11	5.6	ug/L
>	In	115	308653.630				ug/L
	Ag	107	0.002	**0.058454**	0.02	32.4	ug/L
	Cd	114	0.002	**0.107828**	0.01	7.7	ug/L
	Ba	138	0.069	**0.672080**	0.01	1.0	ug/L
>	Ho	165	471633.983				ug/L
	Hg	201	0.000	**0.019119**	0.00	12.6	ug/L
	Pb	208	0.015	**0.178173**	0.01	5.3	ug/L
	Th	232	0.002	**0.024415**	0.00	9.4	ug/L
	U	238	0.002	**0.020497**	0.00	1.5	ug/L
	U	235	0.000	**0.000123**	0.00	29.0	ug/L
	U	234	0.000	**0.000072**	0.00	50.0	ug/L
>	Sc-1	45	170251.959				ug/L
	Na	23	2385.834	**89868.125891**	2782.77	3.1	ug/L
	Mg	24	1.817	**98.915061**	0.85	0.9	ug/L
	K	39	123.157	**2610.232900**	84.37	3.2	ug/L
	Ca	44	0.585	**409.411365**	17.32	4.2	ug/L

QC Out Of Limits

Analyte	Mass	Out of Limits Message
Be	9	Out (RPD > +/- 20%)
Ag	107	Out (RPD > +/- 20%)
Hg	201	Out (RPD > +/- 20%)
Th	232	Out (RPD > +/- 20%)
U	238	Out (RPD > +/- 20%)
U	235	Out (RPD > +/- 20%)

MDLs and Unit conversions

Be, B, V, Cr, Co, Ni, Cu, As, Ag, Cd, Pb MDL: 1 ug/L
Al MDL: 10 ug/L
Zn 68 MDL: 2 ug/L
Si, Na, Mg MDL: 100 ug/L; Fe MDL: 300 ug/L; K MDL: 200 ug/L; Ca MDL: 1000 ug/L
Se MDL 0.5 ug/L; Hg MDL: 0.05 ug/L
Th 232 MDL: 0.5 ug/L (0.055 pCi/L), Conversion 0.110 pCi/ug
U 238 MDL: 0.5 ug/L (0.17 pCi/L), Conversion 0.336 pCi/ug
U 235 MDL: 0.005 ug/L (0.011 pCi/L), Conversion 2.16 pCi/ug
U 234 MDL: 0.0005 ug/L (3.1 pCi/L), Conversion 6220 pCi/ug

U 235 MDL: 0.005 ug/L (0.011 pCi/L), Conversion 2.16 pCi/ug
U 234 MDL: 0.0005 ug/L (3.1 pCi/L), Conversion 6220 pCi/ug

Quantitative Analysis - Summary Report

Sample ID: 05.76069

Sample Date/Time: Wednesday, August 31, 2005 15:49:17
Sample Description: TA50 Pump House 50X
Solution Type: Sample
Blank File: d:\elandata\Dataset\200508\Blank.205
Number of Replicates: 3
Peak Processing Mode: Average
Signal Profile Processing Mode: Average
Dual Detector Mode: Dual
Dead Time (ns): 57

Sample File: D:\elandata\Sample\050831 metals2.sam
Method File: d:\elandata\Method\rlw metal screen.mth
Dataset File: d:\elandata\Dataset\200508\05.76069.224
Tuning File: d:\elandata\Tuning\RLW.tun
Optimization File: d:\elandata\Optimize\RLW.dac
Calibration File: D:\elandata\System\050831metals2.cal
Calibration Type: External Calibration

Summary

QC Calculated Values

Analyte	Mass	Int Std % Recovery	QC Std % Recovery	Duplicate Rel. % Difference	Spike % Recovery
Li	6	115.492			
Be	9				
B	11				
Sc	45	103.322			
Al	27				
Si	28				
V	51				
Cr	52				
Fe	54				
Co	59				
Ni	60				
Cu	63				
Y	89	104.065			
Zn	66				
Zn	68				
As	75				
Se	82				
In	115	89.659			
Ag	107				
Cd	114				
Ba	138				
Ho	165	86.057			
Hg	201				
Pb	208				
Th	232				
U	238				
U	235				
U	234				
Sc-1	45	103.322			
Na	23				
Mg	24				
K	39				
Ca	44				

Concentration Results

	Analyte	Mass	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Sample Unit
>	Li	6	8289.582				ug/L
	Be	9	0.003	**4.024538**	0.29	7.3	ug/L
	B	11	0.085	**89.370634**	15.01	16.8	ug/L
>	Sc	45	156919.107				ug/L
	Al	27	54.808	**119777.324474**	2313.68	1.9	ug/L
	Si	28	84.737	**277014.266460**	1439.37	0.5	ug/L
	V	51	-0.088	**-79.328238**	52.29	65.9	ug/L
	Cr	52	8.345	**8490.070554**	29.14	0.3	ug/L
	Fe	54	4.006	**53030.887066**	5519.08	10.4	ug/L
	Co	59	0.015	**12.526321**	0.52	4.1	ug/L
	Ni	60	-0.001	**-3.072718**	7.00	227.7	ug/L
	Cu	63	0.363	**644.988902**	15.28	2.4	ug/L
>	Y	89	290639.916				ug/L
	Zn	66	5.350	**54600.925052**	1025.43	1.9	ug/L
	Zn	68	3.805	**53725.069702**	761.64	1.4	ug/L
	As	75	0.003	**22.447782**	2.79	12.4	ug/L
	Se	82	-0.000	**-0.970611**	4.03	414.8	ug/L
>	In	115	280739.650				ug/L
	Ag	107	0.002	**3.596507**	0.70	19.5	ug/L
	Cd	114	0.001	**1.311408**	0.15	11.3	ug/L
	Ba	138	0.933	**451.956378**	9.90	2.2	ug/L
>	Ho	165	423121.551				ug/L
	Hg	201	0.000	**0.186274**	0.15	80.8	ug/L
	Pb	208	0.074	**42.689015**	3.84	9.0	ug/L
	Th	232	0.066	**37.315326**	27.43	73.5	ug/L
	U	238	0.017	**9.268652**	1.46	15.8	ug/L
	U	235	0.000	**0.089368**	0.02	18.3	ug/L
	U	234	0.000	**0.003403**	0.00	45.9	ug/L
>	Sc-1	45	156919.107				ug/L
	Na	23	29.989	**56481.268306**	16317.44	28.9	ug/L
	Mg	24	5.522	**15029.502210**	1837.30	12.2	ug/L
	K	39	31.247	**33112.489334**	765.95	2.3	ug/L
	Ca	44	0.766	**26814.340368**	289.81	1.1	ug/L

QC Out Of Limits

Analyte	Mass	Out of Limits Message
Al	27	Out (>10* highest cal std)
Zn	66	
Zn	68	Out (>10 * highest cal std)

MDLs and Unit conversions

Be, B, V, Cr, Co, Ni, Cu, As, Ag, Cd, Pb MDL: 1 ug/L
Al MDL: 10 ug/L
Zn 68 MDL: 2 ug/L
Si, Na, Mg MDL: 100 ug/L; Fe MDL: 300 ug/L; K MDL: 200 ug/L; Ca MDL: 1000 ug/L
Se MDL 0.5 ug/L; Hg MDL: 0.05 ug/L
Th 232 MDL: 0.5 ug/L (0.055 pCi/L), Conversion 0.110 pCi/ug
U 238 MDL: 0.5 ug/L (0.17 pCi/L), Conversion 0.338 pCi/ug
U 235 MDL: 0.005 ug/L (0.011 pCi/L), Conversion 2.16 pCi/ug
U 234 MDL: 0.0005 ug/L (3.1 pCi/L), Conversion 6220 pCi/ug

```
       Half lives decay limit:     12.000
       Activity range factor:       2.000
       Min. step backg. energy      0.000

Corrections                          Status          Comments
       Decay correct to date:         NO
       Decay during acquisition:      NO
       Decay during collection:       NO
       True coincidence correction:   YES
       Peaked background correction:  NO
       Absorption (Internal):         NO
       Geometry correction:           NO
       Random summing:                NO

total peaks allocated      1 cutoff   10.00000    %
       Energy Calibration
            Normalized diff:       1.0000

************ U N I D E N T I F I E D    P E A K    S U M M A R Y ************
  Peak Centroid  Background Net Area   Intensity   Uncert   FWHM  Suspected
Channel   Energy   Counts     Counts   Cts/Sec   2 Sigma %  keV   Nuclide
_____________________________________________________________________________
  759.56   144.84        45.        35.     0.019   83.29   0.254  -      sM

  s - Peak fails shape tests.
  D - Peak area deconvoluted.
  L - Peak written from unknown list.
  C - Area < Critical level.
  M - Peak is close to a library peak.

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

*****   S U M M A R Y   O F   N U C L I D E S   I N   S A M P L E   *****
         Time of Count   Uncertainty  2 Sigma
Nuclide    Activity        Counting     Total
              nCi/L          nCi/L        nCi/L

_____________________________________________________________________________
BE-7    <    7.4036E-02
NA-22   <    1.1743E-03
SC-46   <    6.8847E-05
Sc-48   <    5.0554E-03
V-48    <    3.6856E-03
Mn-52   <    5.6897E-05
MN-54   <    5.0664E-03
CO-56   <    2.0979E-02
CO-57   <    2.5825E-03
CO-58   <    1.2903E-02
CO-60   <    9.6304E-03
ZN-65   <    6.9584E-03
As-74   <    8.3019E-05
SE-75   <    2.8122E-03
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Rb-83   <    8.6323E-03
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Enclosure 3

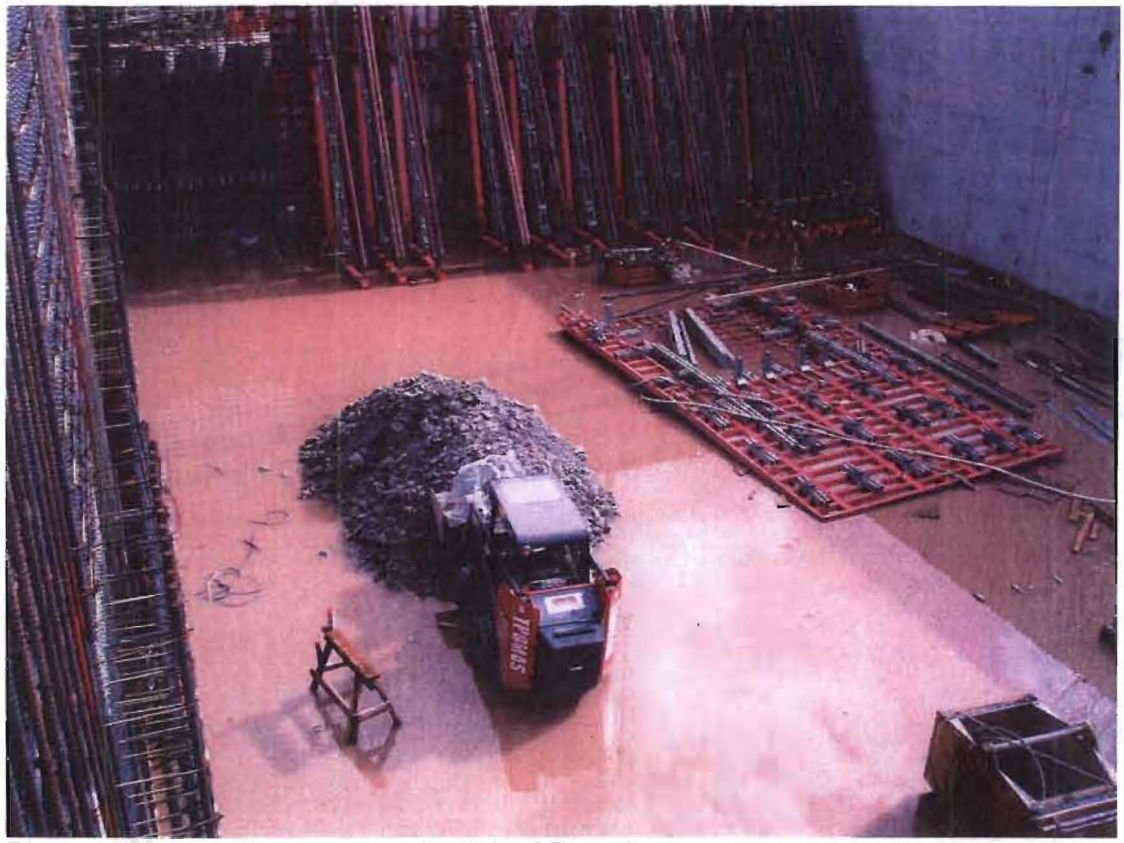

Photo 1. Storm water on concrete slab of Pumphouse construction site (August 24, 2005)

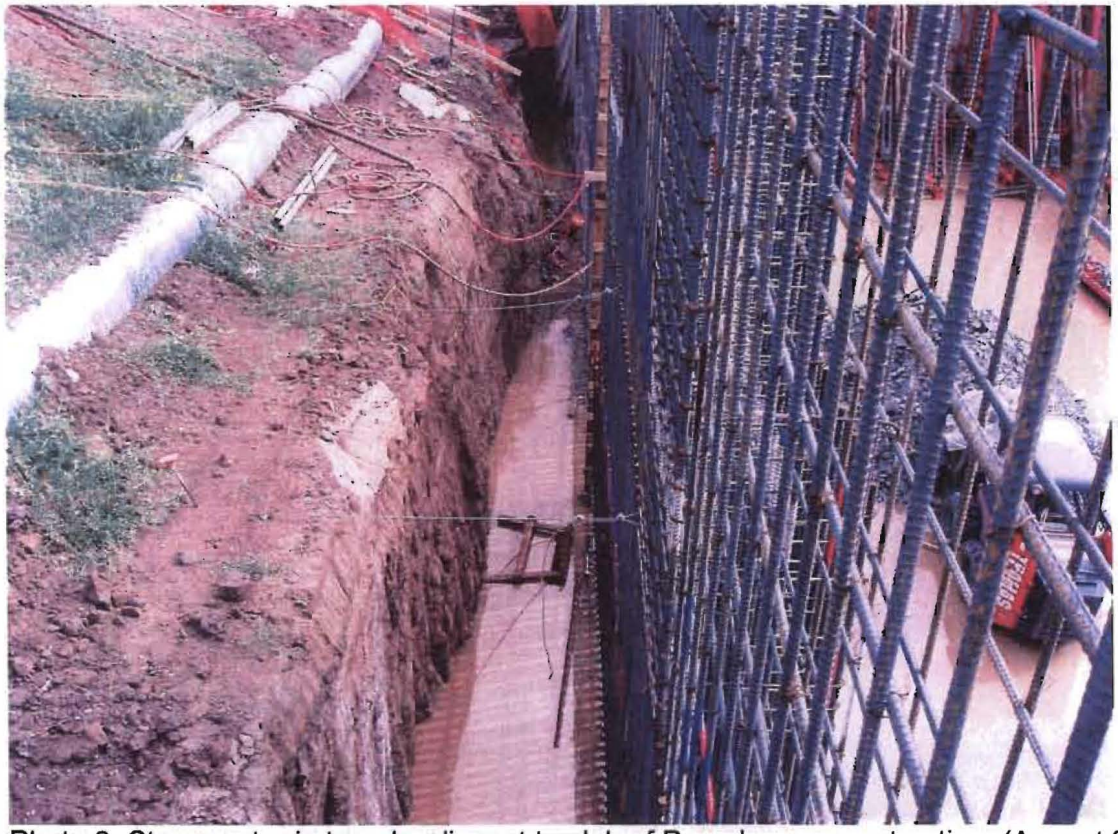

Photo 2. Storm water in trench adjacent to slab of Pumphouse construction (August 24, 2005)

Photo 3. Location of retention basin on right side of photo and flow path on east side (August 29, 2005)

Photo 4. Retention basin looking west through failed berm (August 29, 2005)

Photo 5. Failed berm of retention basin on left (August 29, 2005)

Photo 6. Lower failed slope east of retention basin at small excavated hole (August 29, 2005)

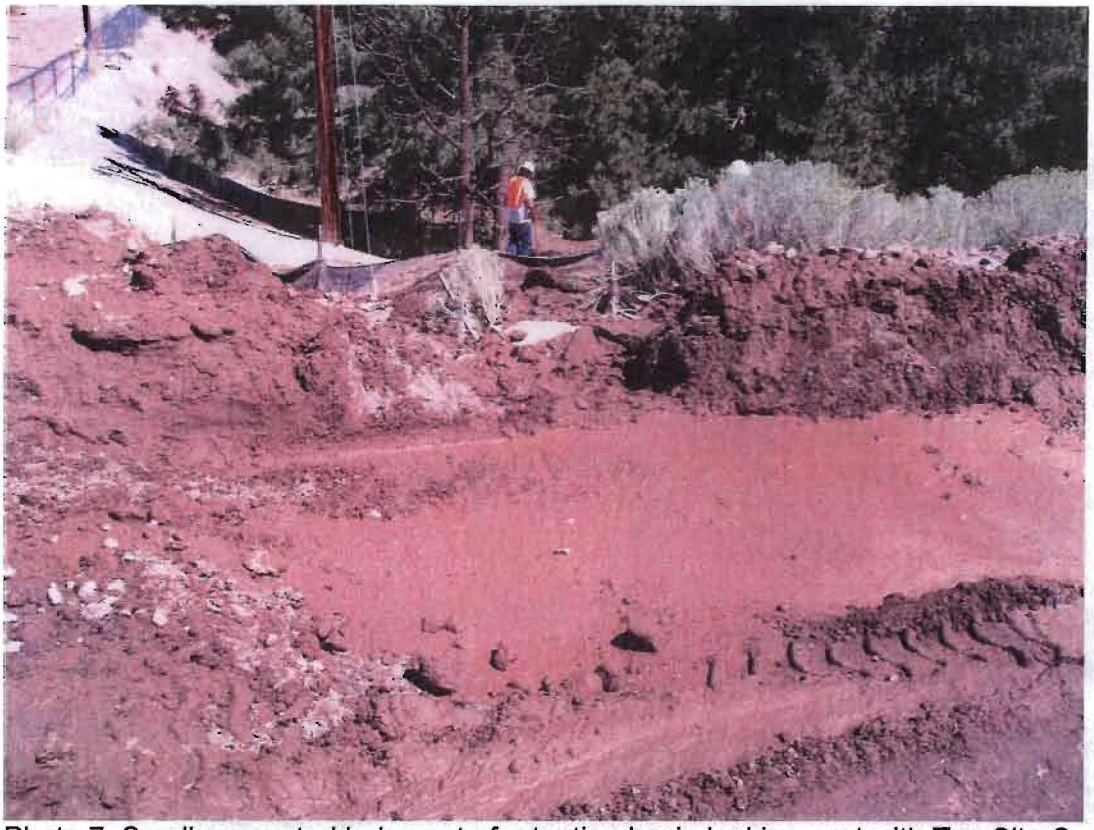

Photo 7. Small excavated hole east of retention basin looking east with Ten Site Canyon in background (August 29, 2005)

Photo 8. Flow path over 2 silt fences

Photo 9. Flow path over shotcrete slope into Ten Site Canyon

Photo 10. Tanks located on site to retain storm water (Brought on site September 1, 2005)